

## CLAIMS

1. Device for driving a plasma display panel having a plurality of cells arranged in rows and columns, said device comprising row address means for selectively addressing the display cell rows and creating, where  
5 required, in cooperation with means for selectively applying data voltages to the display columns, an electrical discharge inside the cell disposed at the intersection of the row and column selected during an address phase, and sustain means for sustaining the electrical discharges inside said cell during  
10 a sustain phase immediately following the address phase,  
characterized in that said row address means and/or sustain means are capable of allowing a bi-directional current to flow within the cells of the display during said address and/or sustain phases.
- 15 2. Device according to Claim 1, characterized in that the row address means comprise:  
- at least one row driver circuit (11) connected between first and second connection lines (L1, L2) and designed to apply, during the address phase, the potential of one of said first and second connection lines to a first  
20 electrode (Yas) of the cells of a plurality of rows,  
- a first switch (I2) for selectively applying an address voltage (Vw) to the second connection line (L2) during the address phase,  
- a first diode (D1) connected in series with a second switch (I1) for applying a second voltage (Vbw) to the first connection line (L1) during  
25 the address phase, said diode being oriented so as to allow a current to flow in the direction of the first connection line (L1),  
- a capacitor (C1) for connecting the cathode of the first diode (D1) to the second connection line (L2).
- 30 3. Device according to Claim 2, characterized in that the sustain means comprise:  
- third and fourth switches (I3, I4) for selectively applying a high sustain voltage (Vs) and a low sustain voltage to said first connection line (L1),  
35 - fifth and sixth switches (I5, I6) for selectively applying said high sustain voltage (Vs) and said low sustain voltage to a second electrode (Y) of the cells, said third and sixth switches (I3, I6) on the one hand, and said

fourth and fifth transistors (I4, I5) on the other, being controlled in an identical manner.

4. Device according to Claim 3, characterized in that the sustain means additionally comprise:

- a second diode (D3) connected in series with said third switch (I3) and oriented so as to allow a current to flow into the first connection line (L1),
- third and fourth diodes (D7, D8) connected in parallel with the third and fourth switches (I3, I4), respectively, and
- fifth and sixth diodes (D5, D6) connected in parallel with the fifth and sixth switches (I5, I6), respectively.

5. Device according to one of Claims 2 to 4, characterized in that the sustain means additionally comprise a fifth switch (I7) inserted between the first and second connection lines, which switch is open during the address phase and closed during the sustain phase.

6. Device according to Claim 1, characterized in that, the cell rows being divided into a plurality of blocks of rows (B1, B2), separate row address means are provided for each of the blocks of rows.

7. Device according to Claim 6, characterized in that the row address means for each block of rows (B1, B2) comprises:

- at least one row driver circuit (11) for each of the blocks of rows connected between the first and second connection lines (L1, L2; L1', L2') and designed to apply, during an address phase specific to said block of rows, the potential of one of said first and second connection lines to a first electrode (Yas) of the cells of a plurality of rows of the block,
- a first switch (I2; I2') for selectively applying an address voltage (Vw) to the second connection line (L2; L2') during the address phase,
- a first diode (D1; D1') connected in series with a second switch (I1; I1') for applying a second voltage (Vbw1) to the first connection line (L1; L1') during the address phase, said diode being oriented so as to allow a current to flow in the direction of the first connection line (L1, L1'),
- a capacitor (C1; C1') for connecting the cathode of the first diode (D1; D1') to the second connection line (L2; L2'),

- a switching means (I10; I10') for isolating said first connection line (L1; L1') from the sustain means of said driver device during the row address phase of the relevant block, and

5       - a third switch (I8) for applying a third voltage (Vbw2) higher than said second voltage (Vbw1) to said first connection line (L1; L1') during the address phases specific to the other blocks.

10       8. Device according to Claim 7, characterized in that said third switch (I8) is common to the address means of the blocks of rows.

15       9. Device according to Claim 8, characterized in that the switching means is a switch (I10; I10') connected between the sustain means of the device and said first connection line (L1; L1'), which switch is open during the row address phase of the relevant block.

20       10. Device according to one of Claims 7 to 9, characterized in that said third voltage (Vbw2) is equal to said high sustain voltage (Vs).

25       11. Device according to any one of Claims 7 to 10, characterized in that the sustain means comprise:

      - third and fourth switches (I3, I4) for selectively applying a high sustain voltage (Vs) and a low sustain voltage to said first connection line (L1; L1') of the blocks when the switching means of said blocks is in the on state,

30       - fifth and sixth switches (I5, I6) for selectively applying said high sustain voltage (Vs) and said low sustain voltage to a second electrode (Y) of the cells of the plurality of rows selected by said row driver circuit (11), said third and sixth switches (I3, I6) on the one hand, and said fourth and fifth transistors (I4, I5) on the other, being controlled in an identical manner.

35       12. Device according to Claim 11, characterized in that the sustain means additionally comprise:

      - a second diode (D3) connected in series with said third switch (I3) and oriented so as to allow a current to flow into the first connection line (L1; L1') of the blocks when the switching means of said blocks is in the on state, and

- third and fourth diodes (D7, D8) connected in parallel with the third and fourth switches (I3, I4), respectively, and

- fifth and sixth diodes (D5, D6) connected in parallel with the fifth and sixth switches (I5, I6), respectively.

5

13. Device according to one of Claims 8 to 12, characterized in that said third switch (I8) is connected in parallel with said second diode (D3).

10

14. Device according to one of Claims 11 to 13, characterized in that the sustain means additionally comprise a fifth switch (I7; I7') inserted between the first and second connection lines of each block, which switch is open during the row address phase of the relevant block and closed during the sustain phase.

15

15. Device according to Claim 14, characterized in that the switching means for isolating the first connection line (L1; L1') from the sustain means of said driver device during the row address phase of the relevant block is a diode (D10; D10') connected between the sustain means of the device and said first connection line (L1; L1'), which diode is oriented so as not to allow a current to flow in the direction of the first connection line (L1) and in that the fifth switch (I7, I7') is inserted between the sustain means of the device and said second connection line (L2, L2').

25

16. Plasma display panel characterized in that it comprises a driver device according to one of Claims 1 to 15.